User Guide

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1 Installation

1.1 External Softwares

- Linux
  - **cLapack:** install liblapacke-dev (its also available in synaptic package manager)
  - **ATLAS:** *sudo apt-get install libatlas-base-dev*
  - **SuiteSparse:**
    - *sudo apt-get install build-essential* (If Linux is freshly installed and it does not have g++)
    - Download Suitesparse unzip it and go to home folder.
    - change directory of terminal to home folder
    - *make library*
    - *sudo make install*
- Mac :
  - **SuiteSparse:** Follow the read me file provided with SuiteSparse.

2 Generating a problem and compiling in c

1. **Adding a path:** Download alternative-direction-toolbox. Open the matlab and add alternative-direction-toolbox/split folder to matlab path.
2. **Define a problem in MATLAB:**
   - **For Mac:** change matlab path to alternative-direction-toolbox/split/test/testSplitCoder and open the file testSplitCoder.m. Define a problem there. For reference, different constraints and different algorithms are illustrated with comments.

- **For Linux:** change matlab path to alternative-direction-toolbox/split/test/testLinux and open the file testSplitCoder.m. For the reference different constraints and different algorithms are illustrated with comment.

3. **Code and data generation:** Once the problem is defined in m file (use testSplitCoder.m as a template) run the file and it will solve the optimisation problem in matlab. It will also create file called probdata.c and probate.h in the current matlab path.

4. **For linux only:**

   - delete #include accelerate.h from the probate.h
   - add following lines in probdata.h file.
     - #include clapack.h
     - #includecblas.h
     - # include clapack_mac.h
     - #include lapacke.h

5. Enter the following 2 command in terminal to compile.

   - *make clean*
   - *make*

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